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ABSTRACT

The National Institute of Education (NIE), Singapore's only teacher training institution, is working toward improved teaching of thinking skills within preservice teacher education. The teaching of thinking skills has always been one feature of NIE preservice programs, though a number of changes have recently been proposed, including integration of thinking skills into the content and delivery of courses and use of recent research and best practices to promote critical and creative thinking. A process-oriented approach to instruction will be emphasized. There will be more emphasis on thinking during the practicum. NIE will initiate research in the area of critical thinking and creativity. The establishment of the Singapore Centre for Teaching Thinking is one initiative that demonstrates NIE's commitment to realizing Singapore's vision of "Thinking Schools, Learning Nation." It's three core activities are teaching/training, development of programs and materials, and research and research dissemination. Inservice training for current teachers will involve a series of workshops during the June and December vacation months. The school curriculum will also be reviewed and revised to encourage development of higher order thinking skills, incorporate technology, emphasize joy of learning and development of habits for continual learning, and reduce content in each area. (Contains nine references.) (SM)

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# TEACHING THINKING SKILLS for PRE-SERVICE and IN-SERVICE TEACHERS IN SINGAPORE

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Teaching Thinking Skills for Pre-service and In-service Teachers in Singapore

In June 1997, the National Institute of Education as the only teacher-training institution in Singapore, played a vital role in organising the 7th International Conference on Thinking with the theme: "Borderless Thinking: Creating a Global Learning Society". In his keynote address, the Prime Minister Goh Chok Tong spelt out the vision of the Thinking Schools, Learning Nation concept. The synergy generated by the Conference and the reform initiatives of the Ministry of Education have led to significant developments in the field of thinking in all educational institutions in Singapore.

The National Institute of Education (NIE) as the sole teacher training institution in Singapore, has responded to the challenge and opportunities posed by this concept. The NIE is responsible for equipping new teacher-trainees with the necessary skills and dispositions for fostering critical and creative thinking among pupils in schools. Among the necessary skills which newly graduated teachers should possess are encouraging pupils in schools to seek knowledge beyond the confines of their textbooks, shaping discourse during lessons through the use of instructional technology and formulating relevant assessment criteria and methods suitable for formative and summative evaluation of pupil learning.

In one of the initial challenges, the teacher will be required to respond effectively to pupils' inquiries and to lead them to higher-levels of conceptual understanding. This demands a set of new dimensions facing teacher training in NIE. It calls for a shift from knowledge transmission to process-oriented learning and education and a stress on collaborative and inter-disciplinary learning. Included in the new emphasis are discovery and exploratory learning, use of technology and IT and reform of assessment procedures.

The Teaching of Thinking Skills in Pre-service Programmes

The teaching of thinking skills has always been a feature of NIE pre-service programmes long before thinking skills came into prominence in recent years. While some education and curriculum modules explicitly address the nature of thinking and creativity, the issues of the application of thinking and study skills in learning, curriculum courses and tutorials in the education modules are used to actively promote higher-order thinking skills. A number of changes have been proposed to the Education Modules. The content and delivery of courses to increase the integration of thinking skills with their content in all modules will be reviewed. Activities planned for educational topics will seek to utilize current research and best practices to promote critical and creative thinking. Such practices would help teachers to become good mentors to pupils' learning and thinking within and without the classroom.

In the Instructional Science modules, consideration will be given to implementing social-constructivistic approaches to instruction, especially in tutorials and workshops. In these courses, pupils will be engaged in inter-disciplinary projects, using IT as a tool to develop their learning.There will also be a greater emphasis on independent learning. Assessment

criteria would include the capacity to make inter-disciplinary links, integration of IT, and creativity. Pre-service student-teachers would be encouraged to use the reflective enquiry to critically analyse learning problems and propose creative solutions.

Modules in Curriculum Studies will have thinking skills integrated in them. Materials prepared by the Ministry of Education's Thinking Programme unit for English, Science, Mathematics, History and Geography at secondary one and two will be used. Teachers are being trained to teach these subjects effectively. Periodically, curricular materials and methods will be reviewed to ensure relevance and reliability. Representatives from the schools will also review the curriculum to minimize overlaps between subjects, thus freeing time for pupils to read and reflect.

In teaching higher order thinking skills for pre-service teachers, a process-oriented approach of instruction is emphasised. Instead of a bias towards the use of mass lectures, the inductive approach through problem-solving and case-analysis methods will increasingly be used. Such pedagogical practices would better engage pupils in the critical analysis of information presented, formulation of principles and ideas, and the generation of solutions to the problems at hand. There will be a reduction in the number of mass lecture hours and an increase of tutorial and independent-study hours, to provide more time for trainees' discussions, interactions, and project work. This will enable trainees to better understand how to acquire and handle knowledge and information. Trainees will be provided with more opportunities to observe and cultivate skills in the processes of acquiring, selecting and integrating knowledge, and in working collaboratively with others..

The Practicum or school attachment forms an integral part of the overall professional preparation programme for new teachers. There will more emphasis on thinking during the practicum. While the Assessment of Performance in Teaching (APT) forms for the school supervision have been found to be useful and adequate , NIE will revise these forms to ensure that trainee-teachers are aware of, and able to use, appropriate strategies to promote critical and creative thinking amongst their pupils. The APT forms will be revised to reflect the explicit need for trainees to demonstrate their ability to develop pupils' thinking and creativity through questioning, activities and assignments. Supervisors and cooperating teachers are asked to assess the effort put in by trainees in developing their questioning techniques, the reflective quality of the questions asked and the stress on justification of responses given.

In the role of assessment, NIE will examine how activities such as fieldwork, laboratory work, seminars and presentations can be more extensively used as additional forms of formative and summative assessment. These will give a more holistic picture of a pupil's individual competencies. Higher weightage will be given to project work and alternative assessment formats used to allow for a better assessment of a wider range of abilities, especially thinking skills related to inter-disciplinary projects.

NIE will initiate research in the area of critical thinking and creativity. It will also develop, through action research, theory grounded approaches, frameworks and models

of instruction. Currently, some investigative efforts are already being undertaken by NIE faculty in certain areas eg Early MetaLearning, Critical Thinking among Malays, Philosophy for Children in Schools and Reflective Thinking for Preferred Practices. More research in these areas is required in order for teachers to be better equipped in the future.

The Singapore Centre for Teaching Thinking

The establishment of the Singapore Centre for Teaching Thinking (SCTT) is an important initiative to demonstrate NIE's commitment to realizing the vision of "Thinking Schools, Learning Nation". The SCTT is jointly sponsored by the National Centre for Teaching Thinking located in Boston, Mass in USA and a steering committee has been set up consisting of members of different professions and academic institutions to give direction, advice and support for the Centre's activities.

The SCTT will have three core activities:
a) Teaching/Training
b) Development of Programmes and Materials
c) Research and Research Dissemination

It aims to provide and support high quality teaching, research and consultancy services to schools and other educational institutions in Singapore and in the region on projects and research related to infusing the teaching of critical and creative thinking into content instruction. The Centre will develop programmes and undertake research projects to enhance the development of critical and creative thinking skills in students and enhance the infusion of thinking skills in the school curriculum and in the curriculum of post secondary institutions.

A computerised database of research studies and findings on the development of critical and creative thinking and on infusing thinking skills into the curriculum will be developed for use by teachers, educators, researchers and parents. As part of its outreach programme, the SCTT will host talks and conduct workshops and seminars on thinking. Local and foreign experts will be invited to give talks and presentations on this subject on a regular basis. The Centre will work closely with the Principals' Executive Centre and the Teachers Network to reach out more effectively to school personnel.

The first activity organised by SCTT was the First Singapore Summer Institute for Teaching Thinking. The trainers comprised faculty members such as Art Costa, Alec Fisher, David Perkins and Robert Swartz. Response was overwhelming and more than 500 participants from schools, tertiary institutions, special schools, childcare centres, community groups and business corporations attended a series of courses over a two week period. Some of the courses conducted were ; Infusing Critical and Creative Thinking ; The Art of Cognitive Coaching, Instructional Methods for Teaching Thinking, Teaching Critical Thinking in College, Staff Development Training Seminar and Assessing Creative and Critical Thinking.

Inservice Training for Teachers

In view of the large number of in-service teachers to be trained and the manpower constraints at NIE, the proposed training of these teachers will be basically made up of a series of workshops to be conducted during the June and December vacation months. These workshops would complement the existing "Thinking Programme" training workshops implemented by MOE. Each workshop would be attended by approximately 300 teachers and each session covers the essential generic topics on thinking and learning eg cognition, metacognition, social cognition, assessment issues, integration or infusing into different curriculum subjects, questioning and inquiry learning and Marzano's Dimension of Learning.

The training sessions began in June 1998 – the first being a 20 hour module for teachers in the junior colleges. The objectives of the course are :

1. to develop learning attitudes which foster thinking dimensions.
2. To identify and use general, critical and creative thinking skills.
3. To infuse thinking skills into content areas.
4. To evaluate simple and complex thinking skills.

Towards Thinking Schools, Learning Nation

In an open letter to all principals and teachers in the education service, the director-general of education stated that the ministry of education has announced its intention to review the school curriculum. Teachers have worked hard to bring our children to a high level of achievement but there are challenges looking ahead . A faster pace of life is straining the fabric of society and eroding traditional values like respect for our elders and teachers. Economic competition is becoming more intense in the world and Singaporeans need to develop a global outlook and yet remain rooted and committed to Singapore.

He stressed the important role played by education in meeting these challenges. One of the areas requiring a major re-think is the curriculum and the curriculum needs to be revised in four ways:

*reduction of content in each subject, with emphasis on broad based learning at the earlier stages and greater depth and specialisation at the higher stages of education.

*emphasis on the joy of learning and development of habits of continual learning.

*development of skills for higher order thinking, effective communication and teamwork at all levels; and

*incorporation of National Education themes and the use of information technology in the curriculum.

The above changes to the curriculum are accompanied by adjustments to other areas in the context of teaching and learning. Teaching strategies will shift emphases from teacher to learner, classroom cultures will change and our assessment and examination system will be transformed. Modifications to teacher training, and ultimately school appraisal will support the change in focus. It is envisaged that the process of these changes will take at least five years but the beginnings have been made.

Summary comments

It can be seen that a global comprehensive approach by the NIE and the Ministry of Education in Singapore has been taken to emphasise the importance of infusing thinking into the education system. The formulation and implementation plan for this infusion are still currently in progress but it is timely . To face the challenges of the 21st century there is a need to develop a nation of thinkers, capable of solving problems critically and creatively in all spheres of life.

REFERENCES


1 Bell, Beverley (1993) Taking into account students' thinking: a teacher development guide. Hamilton: University of Waikoko.

2 Brandt, Ronald (ed) (1989) Teaching thinking: readings from Educational Leadership. Alexandria, Va: Association for Supervision and Curriculum Development.

3 Costa, Arthjur L., Bellanca, James and Fogarthy, Robin (ed) (1992) If Minds Matter: a foreword to the future. Palatine, Ill: IRI/Skylight Pub.

4 Dantonio, Marylou. (1990) How can we create thinkers?: questioning strategies that work for teachers. Bloomington: National Educational Service.

5 Day, Christopher W., Denicolo, Pam and Pope, Maureen (ed) (1990) Insights into teachers' thinking and practice. London: Falmer Press.

6 Goh, C.T. (1997) Shaping Our Future: Thinking Schools, Learning Nation. Opening Address at the Seventh Conference on Thinking. Singapore. 2 June 1997.

7 Keefe, James W. and Walberg, Herbert J. (ed) (1992) Teaching for thinking. Weston, Va: National Association for Secondary School Principals.

7 Swartz, Robert J. (1990) Teaching thinking: Issues and Approaches. Pacific Grove, California: Midwest Publications.

8 Taggart, Germaine L. (1996) Reflective thinking: a guide for training preservice and inservice practitioners. Ann Arbor: UMI.

9 Wee H. T. (1997) Towards Thinking Schools, Learning Nation. An open letter from the Director-General of Education to principals and teachers. Singapore.